

## WHAT IS CLAIMED IS:

1. A wireless communication apparatus comprising:

5 a transmission path fluctuation period detection unit for detecting a transmission path fluctuation period in which transmission path fluctuation caused by a discharge lamp is greater than other in other periods; and

10 a transmission control unit that packetizes a bit stream and selectively operates in a normal transmission mode that does not restrict packet transmissions or in a restricted transmission mode that restricts packet transmissions;

15 wherein the transmission control unit selects the restricted transmission mode when the packet transmission period at least overlaps the transmission path fluctuation period, and selects the normal transmission mode when the packet transmission period does not overlap the transmission path fluctuation period.

2. A wireless communication apparatus as described in claim 1, wherein the transmission path fluctuation period detection unit comprises an AC power supply measuring unit for detecting the voltage or current  
20 level of the AC power source, and the transmission path fluctuation period is detected based on change in the voltage or current.

25 3. A wireless communication apparatus as described in claim 1, wherein transmission path fluctuation period detection unit comprises a photoelectric conversion unit which generates an electric signal from ambient light around the wireless communication apparatus, and the transmission path fluctuation period is detected based on change in output from the photoelectric conversion unit.

4. A wireless communication apparatus as described in claim 1,  
wherein the transmission path fluctuation period detection unit comprises  
a means of detecting a rising period and falling period of light output by a  
5 discharge lamp, and at least the rising period and falling period are  
detected as the transmission path fluctuation period.
5. A wireless communication apparatus as described in claim 1,  
wherein the transmission path fluctuation period detection unit comprises  
10 a means of detecting an error rate distribution for the received data, and  
the transmission path fluctuation period is detected based on the error  
rate distribution.
6. A wireless communication apparatus as described in claim 1,  
15 wherein the transmission path fluctuation period detection unit comprises  
a normal transmission confirmation unit that receives a reception  
confirmation signal output by a destination terminal in response to a  
wireless signal transmitted from the wireless communication apparatus  
and detects if the transmitted wireless signal was correctly received by  
20 the destination terminal, and the transmission path fluctuation period is  
detected based on the output signal from the normal transmission  
confirmation unit.
7. A wireless communication apparatus as described in claim 1,  
25 wherein the restricted transmission mode is a mode in which signals are  
not transmitted.
8. A wireless communication apparatus as described in claim 1,

wherein the restricted transmission mode is a mode in which data packets are transmitted at a low rate.

9. A wireless communication apparatus as described in claim 1,  
5 wherein the restricted transmission mode is a mode in which data packets are transmitted to a specific predetermined terminal.

10. A wireless communication apparatus as described in claim 1,  
10 wherein the restricted transmission mode is a mode in which data packets are transmitted to a specific terminal determined from an accumulated error rate.

11. A wireless communication apparatus as described in claim 1,  
15 wherein the restricted transmission mode is a mode in which data packets are transmitted using few spatial multiplex levels or without multiplexing.

12. A wireless communication apparatus as described in claim 1,  
20 wherein the restricted transmission mode is a mode in which data packets are transmitted using fewer antennas than the maximum number of possible antennas.

13. A wireless communication apparatus as described in claim 1,  
25 wherein the restricted transmission mode is a mode in which data packets are transmitted with directivity control by means of transmission diversity.

14. A wireless communication apparatus as described in claim 11,

wherein data denoting the spatial multiplex level is inserted in and transmitted with the wireless packets.

15. A wireless communication method comprising steps of:

5 detecting a transmission path fluctuation period in which transmission path fluctuation caused by a discharge lamp is greater than other in other periods; and

packetizing a bit stream and selecting a normal transmission mode that does not restrict packet transmissions or a restricted transmission  
10 mode that restricts packet transmissions;

wherein the restricted transmission mode is selected when the packet transmission period at least overlaps the transmission path fluctuation period, and the normal transmission mode is selected when the packet transmission period does not overlap the transmission path  
15 fluctuation period.

16. A wireless communication method as described in claim 15, further comprising an AC power supply measuring unit for detecting the voltage or current level of the AC power source, wherein the transmission path  
20 fluctuation period is detected based on change in the voltage or current.

17. A wireless communication method as described in claim 15, further comprising a photoelectric conversion unit which generates an electric signal from ambient light around the wireless communication apparatus,  
25 wherein the transmission path fluctuation period is detected based on change in output from the photoelectric conversion unit.

18. A wireless communication method as described in claim 15, further

comprising a means of detecting a rising period and falling period of light output by a discharge lamp, wherein at least the rising period and falling period are detected as the transmission path fluctuation period.

- 5        19.    A wireless communication method as described in claim 15, further comprising a means of detecting an error rate distribution for the received data, wherein the transmission path fluctuation period is detected based on the error rate distribution.
- 10       20.    A wireless communication method as described in claim 15, further comprising a normal transmission confirmation unit that receives a reception confirmation signal output by a destination terminal in response to a wireless signal transmitted from the wireless communication apparatus and detects if the transmitted wireless signal
- 15       was correctly received by the destination terminal, wherein the transmission path fluctuation period is detected based on the output signal from the normal transmission confirmation unit.
- 20       21.    A wireless communication method as described in claim 15, wherein the restricted transmission mode is a mode in which signals are not transmitted.
- 25       22.    A wireless communication method as described in claim 15, wherein the restricted transmission mode is a mode in which data packets are transmitted at a low rate.
23.    A wireless communication method as described in claim 15, wherein the restricted transmission mode is a mode in which data

packets are transmitted to a specific predetermined terminal.

24. A wireless communication method as described in claim 15,  
wherein the restricted transmission mode is a mode in which data  
5 packets are transmitted to a specific terminal determined from an  
accumulated error rate.

25. A wireless communication method as described in claim 15,  
wherein the restricted transmission mode is a mode in which data  
10 packets are transmitted using few spatial multiplex levels or without  
multiplexing.

26. A wireless communication method as described in claim 15,  
wherein the restricted transmission mode is a mode in which data  
15 packets are transmitted using fewer antennas than the maximum number  
of possible antennas.

27. A wireless communication method as described in claim 15,  
wherein the restricted transmission mode is a mode in which data  
20 packets are transmitted with directivity control by means of transmission  
diversity.

28. A wireless communication method as described in claim 25,  
wherein data denoting the spatial multiplex level is inserted in and  
25 transmitted with the wireless packets.